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**UNITED STATES PATENT APPLICATION**

of

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for

**SYSTEMS AND METHODS FOR PROVIDING  
NESTED DISPOSABLE BAGS FOR SELECTIVE USE**

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## **BACKGROUND OF THE INVENTION**

### **1. Related Applications**

This application claims priority to United States Provisional Patent Application Serial No. 60/445,012, which was filed on February 4, 2003 and is entitled PROVIDING NESTED  
5 DISPOSABLE BAGS FOR SELECTIVE USE, which is incorporated herein by reference.

### **2. Field of the Invention**

The present invention relates to disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at  
10 least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

### **2. Background and Related Art**

Disposable bags are currently available in a variety of sizes and are used in a variety of industries. The disposable bags typically include a polymer material, such as polyethylene, and are individually manufactured to a particular thickness depending on the intended use of the bags. Both residential and industrial consumers have found disposable  
20 bags to be useful in performing tasks.

By way of example, residential consumers use disposable bags to contain food (e.g., sandwiches, chips, fruit, vegetables, bread, etc.), household garbage (e.g., bottles, cans, papers, etc.), environmental garbage (e.g., sticks, weeds, grass clippings, leaves, etc.), storage

items (e.g., clothing, blankets, etc.), and other residential or household objects. In one technique, the disposable bags are available to consumers in prepackaged rolls, wherein the individual bags are attached end-to-end. A consumer rolls out a first bag, rips off the first bag from the roll, opens the bag and uses it for containing one or more objects. While the  
5 disposable bags are available to residential consumers, a common frustration of using disposable bags is that the disposable bags are tedious to open and tend to tear open or otherwise break. This is particularly true when the disposable bag is a garbage bag that is used to contain garbage, such as household garbage and/or environmental garbage.

Industrial or commercial consumers use disposable bags to pack goods sold to  
10 customers (e.g., groceries, clothing, office equipment, electronic consumer devices, household items, etc.), to line commercial garbage cans, to protect goods, and the like. Challenges in using the disposable bags include the time required to change the disposable bags, and the tendency that disposable bags rip open or otherwise break.

Thus, while techniques currently exist that are used to provide disposable bags,  
15 challenges still exist with the available techniques, including the time required to manipulate the bags and the tendency of the bags ripping open or otherwise breaking. Accordingly, it would be an improvement in the art to augment or even replace current techniques with other techniques.

## **SUMMARY OF THE INVENTION**

The present invention relates to disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

Implementation of the present invention takes place in association with a nested bag stack or pack, which includes a plurality of bags that are nested or otherwise inserted one inside another. The nested bag pack allows for use of a first bag or bag-set. Upon extraction of the used bag or bag-set, a subsequent bag or bag-set is automatically available and ready for use.

In at least some implementations of the present invention, a nested bag pack is a pre-packaged, multi-inserted pack of bags, wherein the bags have been inserted within one another during the manufacturing process. A bag pack may be made available in a variety of shapes, sizes, thicknesses and/or colors. And, in at least some implementations of the present invention, the nested bags comprise a disposable material, such as a polymer material (e.g., polyethylene or another plastic or polymer material), paper, or another material.

Nested bag packs have a variety of uses in a variety of industries, including household and commercial use. For example, residential consumers use disposable nested bags for the containing of food (e.g., sandwiches, chips, fruit, vegetables, bread, etc.), household garbage (e.g., bottles, cans, papers, etc.), environmental garbage (e.g., sticks, weeds, grass clippings, leaves, etc.), storage items (e.g., clothing, blankets, etc.), and/or other

residential or household objects. In one implementation, the strength of the nested bags is determined by the user at the time of extraction of the used bags by extracting the number of nested bags to provide the strength needed for the task at hand. Industrial or commercial consumers use disposable bags to pack goods sold to customers (e.g., groceries, clothing, office equipment, electronic consumer devices, household items, etc.), to line commercial garbage cans, to protect goods, and the like.

Thus, some implementations of the present invention embrace systems, methods and/or processes for manufacturing or otherwise producing nested bag packs. Other implementations of the present invention embrace the utilization of the nested bag packs. As provided above, the utilization of the nested bag packs increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags. Furthermore, in at least some implementations of the present invention, structures are provided or utilized to enable freestanding, hanging, and/or supported prepackaged nested bag packs for use.

While the methods and processes of the present invention have proven to be particularly useful in the area of containing the representative items discussed above, those skilled in the art will appreciate that the methods and processes of the present invention can be used in a variety of different applications and in a variety of different areas of manufacture wherever bags are used, including in commercial, industrial, retail, packaging and residential applications.

These and other features and advantages of the present invention will be set forth or will become more fully apparent in the description that follows and in the appended claims.

The features and advantages may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. Furthermore, the features and advantages of the invention may be learned by the practice of the invention or will be obvious from the description, as set forth hereinafter.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

In order that the manner in which the above recited and other features and advantages of the present invention are obtained, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which are illustrated in the appended  
5 drawings. Understanding that the drawings depict only typical embodiments of the present invention and are not, therefore, to be considered as limiting the scope of the invention, the present invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 illustrates a representative embodiment of a nested disposable bag pack in  
10 accordance with the present invention;

Figure 2 illustrates a representative embodiment of a nested disposable bag pack in a disposable-shell configuration;

Figure 3 illustrates a representative embodiment of a nested disposable bag pack in a hanging-pack configuration;

15 Figure 4 illustrates another representative embodiment of a nested disposable bag pack in a hanging-pack configuration;

Figure 5 illustrates a representative embodiment of a hanging-pack configuration in a waste receptacle;

20 Figure 6 illustrates a representative embodiment of a nested disposable bag pack in a waste receptacle, wherein each bag includes its own disposable rim;

Figure 7 illustrates a representative embodiment of a nested disposable bag pack, wherein individual bags are coupled to a single disposable rim or lid;

Figures 8-12 illustrate a variety of other representative embodiments of nested disposable bag packs, wherein the individual bags are coupled to or associated with a single rim or lid;

Figure 13 illustrates a representative embodiment of a nested disposable bag pack in a  
5 disposable shell or structure;

Figure 14 illustrates a representative embodiment of a nested disposable bag pack, wherein each bag is coupled to and includes an inter-stacking disposable rim;

Figure 15 illustrates a representative embodiment of a manual attachment of a bag pack to a surface or structure with the use of a clip or brace;

10 Figures 16-17 illustrate a representative embodiment for selectively extracting one or more bags from a bag pack; and

Figure 18 illustrates a representative embodiment for providing a flat lay bag pack.



## **DETAILED DESCRIPTION OF THE INVENTION**

The present invention relates to disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

Embodiments of the present invention take place in association with a nested disposable bag pack. A nest, cluster, bundle, stack or pack comprises a plurality of bags that are inserted one inside another. A nested disposable bag pack allows use of a first bag or bag-set, and upon extraction of the used bag or bag-set, a subsequent bag or bag-set is automatically available and ready for use.

In some embodiments, the nested bag pack is a pre-packaged, multi-inserted bag pack, wherein the bags have been inserted within one another during the manufacturing process. At least some embodiments of the present invention embrace freestanding, hanging and/or supported nested disposable bag packs.

In further embodiments, at least a portion of the bags are fused or otherwise coupled together to selectively maintain a nested association. The bags are selectively extracted from the nest according to a desired strength, use, and the like. The coupling mechanism used to couple the bags of the nest enable selective decoupling of one or more bags from the nest or pack for use.

Embodiments of the present invention embrace bag packs that are provided in a variety of shapes, sizes, thicknesses and/or colors. Furthermore, the bags comprise a

disposable material, such as a polymer (e.g., polyethylene or another plastic or polymer material), paper, or another material. The nested bag pack has a variety of uses in a variety of industries, including household and commercial use.

Accordingly, at least some embodiments of the present invention embrace systems  
5 and methods whereby multiple bags are pre-inserted during the manufacturing process such that a subsequent or new bag or bag pack is automatically in place when the previous or used bag or bag pack is removed. Moreover at least some embodiments of the present invention embrace providing multi-inserted bags that are pre-hung within a disposable receptacle, shell, hanger or structure, which can be discarded along with the last bag of the set, wherein the  
10 disposable receptacle makes bag installation more convenient and eliminates the need for a durable bag container, thereby making the product freestanding and/or self-containing.

In one embodiment, a nested bag pack is provided in a garbage receptacle to provide convenience. Upon removing a full bag, the remaining layers of unused bags are pressed against the inner wall(s) and/or bottom of the receptacle making the next bag or bag-set  
15 automatically available and ready for use.

Embodiments of the present invention provides a variety of advantages over current techniques, including reducing the amount of time required to cause a subsequent bag available for use and facilitating use of disposable bags. Furthermore embodiments of the present invention embrace in all applications where bags are filled, such as bagging  
20 merchandise at a supermarket or other retail checkout counter, bagging vegetables in a produce department, etc. Moreover, embodiments of the present invention embrace use in the meatpacking industry, garbage industry, janitorial industry, commercial industry, industrial industry, landscaping industry, and other industries that utilize disposable bags,

including residential use of bags. At least some embodiments of the present invention further reduce skin contact between consumers and contaminated trash canisters by eliminating the need to install a new bag in a waste receptacle once a used bag has been removed.

5 The following disclosure of the present invention is grouped into five subheadings, namely "Utilization of Nested Bags", "Utilization of Supportive Structures", "Selectively Detaching Nested Bags", "Producing Nested Bag Packs" and "Packaging Nested Bag Packs." The utilization of the subheadings is for convenience of the reader only and is not to be construed as limiting in any sense.

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#### **Utilization of Nested Bags**

As provided above, embodiments of the present invention relate to systems and methods for providing nested disposable bags for selective use. Pre-packaged, multi-inserted bags, which include a plurality of bags that have been inserted, coupled together and/or otherwise provided one within another during the manufacturing process, are provided for selective use. Utilization of the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

20 With reference to Figure 1, a representative embodiment of a nested disposable bag pack is illustrated. In Figure 1, nested bag pack 10 is a pre-packaged, multi-inserted bag pack, wherein bags 12 have been inserted within one another during the manufacturing process. The nested nature of bags 12 enables use of a first bag or bag-set, and upon

extraction of the used bag or bag-set, automatic availability of a subsequent bag or bag-set for use.

In Figure 1, nested bags include a first bag 12a, a second bag 12b, and a third bag 12c. Once a user has filled or otherwise used bag 12a, the user may extract bag 12a. Upon  
5 extraction of bag 12a, bag 12b is available for filling or use. Once bag 12b has been filled or used, it may be extracted from the bag pack. The extraction of bag 12b causes bag 12c automatically available for filling or use.

In another embodiment, if the user needs additional strength to contain one or more items, such as when the user is filling bag 12a with one or more items that would cause bag  
10 12a to rip or with a liquid that could escape through a hole in a single bag, the user may extract multiple bags for increased strength. Thus, in the example illustrated in Figure 1, the user may extract bags 12a and 12b as a bag-set to provide increased strength.

While the present illustration includes a bag pack having three nested bags, those skilled in the art will appreciate that embodiments of the present invention embrace bag pack  
15 with less than three nested bags and bag packs with more than three nested bags.

Embodiments of the present invention embrace nested bags that comprise one or more of a variety of types and/or materials. For example, embodiments of the present invention embrace nested bags that comprise a plastic, paper, polymer or other material. Further the nested bags may be designed or otherwise used for a variety of purposes.  
20 Examples of such materials and purposes include anti-static bags, aviation bags, Billy bags, bread & roll bags, bubble bags, burlap bags, catering bags, cello bags, cellophane bags, clothing bags, coin bags, craft bags, diaper bags, door-knob bags, envelope bags, flat bags, flat-bottom bags, foil bags, freezer bags, frosted/frostview bags, garbage bags, garden bags,

garment bags, gingham bags, grocery bags, gusseted bags, kitchen bags, Kraft bags, lawnmower bags, mail bags, medical bags, merchandise bags, mylar/metallic bags, notion bags, organza bags, pinch bottom bags, plastic bags, poly bags, polymer bags, polyethylene bags, polypropylene bags, polytubing bags, polyurethane bags, pouches, produce bags, round-bottom bags, sandwich bags, shipping bags, shopping bags, shrink bags, SOS bags, square-bottom bags, star-bottom bags, static shielding bags, storage bags, tote bags, trash bags, trash compactor bags, trash liners, T-shirt bags (e.g., plastic grocery bags), vacuum bags, wine bags, ziplock® bags, zipper bags, etc. that are in a nested configuration for use.

At least some embodiments of the present invention embrace freestanding, hanging and/or supported nested disposable bag packs. Thus, with reference now to Figure 2, a representative embodiment is illustrated of a nested disposable bag pack in a disposable-shell configuration. In Figure 2, a supporting frame and/or surface is illustrated that receives a bag pack. The supporting frame or surface is illustrated as shell 14, which receives and holds bags 12 for use. In the illustrated embodiment, shell 14 is disposable. In other embodiments, shell 14 is not disposable and thus reusable.

Alternatively, Figure 3 illustrates a representative embodiment of a nested disposable bag pack in a hanging configuration. In Figure 3, the supporting frame and/or surface includes surface 16 and frame 18. Surface 16 is for example a wall, cupboard, frame or other surface or device that provides sufficient strength to support a bag pack (bags 12). Frame 18 is for example a hook, rim or frame from which to hang a bag pack (bags 12).

With reference now to Figure 4, another representative embodiment of a nested disposable bag pack in a hanging position is illustrated. In Figure 4, the structure and/or frame is illustrated as frame 20, which is a sturdy frame that provides sufficient strength to

support a bag pack (bags 12). Frame 20 may comprise a variety of materials, including a metal, metal alloy, polymer, or other material that provides sufficient strength to support a bag pack.

With reference now to Figure 5, another representative embodiment of a hanging pack is illustrated. In Figure 5, a bag pack (bags 12) is supported by a container 22. In a further embodiment, container 22 is a trash or waste receptacle. In a further embodiment, once a first bag of the bag pack is filled, the remaining bags of the bag pack are biased toward the container. Once the first bag or bag-set is extracted, the remaining bags are maintained near the container and the next bag is automatically available for filling or use.

In some embodiments of the present invention, each bag of the bag pack includes an inter-stacking/inter-coupling rim or structure. A representative example is illustrated in Figure 6, wherein a bag pack is received by container 22, and wherein bags 12a, 12b and 12c are respectively coupled to inter-stacking rims 24a, 24b and 24c. Therefore, bag 12a may be removed from the bag pack by lifting rim 24a and extracting bag 12a from the bag pack. In a further embodiment, rim 24a is used to close or seal the opening of bag 12a. Therefore, for example, by twisting or otherwise manipulating rim 24a, the opening of bag 12a is closed. Likewise, multiple rims may be manipulated in concert when a bag set is extracted.

In some embodiments, a bag pack is associated with a single rim. With reference to Figure 7, a representative embodiment of a nested disposable bag pack (bags 12) with a single rim 26 is illustrated. Container 22 is configured to receive the bag pack (bags 12) and rim 26. In some embodiments, the rim is disposable. A disposable rim facilitates installing the nested bag pack. Further, the disposable rim may be coupled to the disposable bags, and

a mechanism (e.g., perforation, string, cord, plastic weld, etc.) is provided to enable separation and extraction of one or more bags from the rest of the pack, after use.

Embodiments of the present invention embrace the location of the mechanism at any of a variety of locations. For example, in one embodiment, the location is at the inside surface of the rim. In another embodiment, the location is below the rim. In yet another embodiment, the location is at or near an outside surface of the rim or container to provide additional bag surface area needed to close or tie the bag opening. In one embodiment, the bags detach from their nest much further down a long "lip" that extends over the edge and several inches down the outside of the receptacle. This can be done with or without a rim. Further, it can be done in association with any type of a structure or with no structure at all. Thus, at least some embodiments embrace separating bags at a location such that it provides a needed portion of the bag to be able to close or seal the opening of the bag even when the bag is overfilled.

Embodiments of the present invention embrace a variety of different types of rims or lids associated with a bag pack in accordance with the present invention. As provided herein the rims or lids may be disposable or reusable. Figures 8-12 illustrate a variety of representative embodiments of nested disposable bag packs, wherein the individual bags are coupled or otherwise associated with a single rim or lid.

As provided above in association with Figure 2, at least some of the embodiments of the present invention embrace the use of a shell that provides support allowing the bag pack to be freestanding and/or self-containing. In some embodiments, the shell is reusable. In other embodiments, the shell is disposable. In further embodiments, the nested bag pack is coupled to the disposable shell, and a mechanism (e.g., perforation, string, cord, etc.) is

provided to enable separation and extraction of one or more bags from the rest of the pack, after use. An example of a nested bag pack that includes a shell as a supporting structure is illustrated in Figure 13.

As provided above in association with Figure 6, some embodiments of the present invention embrace a nested bag pack wherein each bag includes its own rim. An example of a nested bag pack with individual disposable rims is illustrated in Figure 14, where bag 12a is coupled to rim 24a, bag 12b is coupled to rim 24b, and bag 12c is coupled to rim 24c. The individual rims 24 are associated with each other to enable use of the nested bag pack. In the illustrated embodiment, rims 24 are inter-stacking rims. Therefore, rim 24a stacks on top of rim 24b, which stacks on top of rim 24c. A user may selectively extract one or more of the bags 12 from the bag pack. In a further embodiment, and as discussed above, the individual rims 24 selectively collapse to close the corresponding bags.

Embodiments of the present invention also embrace selective coupling of a nested bag pack to a structure. In one embodiment, a portion of the bag pack is attached to a surface or structure, such as the rim of a receptacle or hanger, by way of mechanisms (e.g., strings, cords, adhesives, clips, manufactured portions, etc.). With reference to Figure 15, a representative embodiment of a manual attachment device is illustrated, wherein a bag pack is manually attached to a surface or structure (container 22) with the use of a clip 28.

As discussed herein, at least some embodiments of the present invention embrace selective extraction of one or more bags from a nested bag pack. A mechanism (e.g., perforation, string, cord, plastic weld, etc.) is provided to enable separation and extraction of one or more bags. A user may desire increased strength (e.g., when the contents are heavy, may puncture or tear, are liquid, are fragile, or the like). Accordingly, the user may



selectively extract more than one bag at a time from the nested bag pack. Alternatively, the bags may be extracted/used one at a time. An example of extracting one or more bags from a nested bag pack is illustrated in Figures 16-17, wherein a mechanism is provided that allows the user to selectively extract one or more bags from the nested bag pack. In Figure 16 a container is illustrated that is configured to receive a bag pack and a lid, wherein a mechanism (e.g., tab 30) is provided to enable separation of one bag from another of the bag pack. As illustrated in Figure 17, a user may remove tab 30 to extract a bag or bag-set from a bag pack.

As discussed above, embodiments of the present invention embrace the location of the mechanism at any of a variety of locations. For example, in one embodiment, the location is at the inside surface of the rim, as illustrated in Figures 16-17. In another embodiment, the location is below the rim. In yet another embodiment, the location is at or near an outside surface of the rim or container to provide additional bag surface area needed to close or tie the bag opening. In one embodiment, the bags detach from their nest much further down a long "lip" that extends over the edge and several inches down the outside of the receptacle. This can be done with or without a rim. Further, it can be done in association with any type of a structure or with no structure at all. Thus, at least some embodiments embrace separating bags at a location such that it provides a needed portion of the bag to be able to close or seal the opening of the bag even when the bag is overfilled.

A nested bag pack may be provided to a consumer in a variety of manners. One representative embodiment is illustrated in Figure 18, which includes a packaging method wherein the nested bag pack is packaged flat.

Accordingly, embodiments of the present invention embrace disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide  
5 a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

Those skilled in the art will appreciate that embodiments of the present invention embrace a variety of uses in a variety of industries. One such industry includes waste disposal and/or the janitorial industry. Examples of where such embodiments of the present  
10 invention may be used include airports, factories, plants, warehouses, home (e.g., kitchen, garden etc.), office, office buildings, parks, amusements parks, recreational areas, public areas, public buildings, libraries, restaurants, food chains and commercial kitchens, retail stores, centers, malls, schools, theaters, auditoriums, concert halls, hospitals, medical offices, and the like.

15 Those skilled in the art will appreciate that other embodiments of the present invention embrace a variety of other uses, including uses outside of the waste disposal/janitorial industry. Examples include food packaging at restaurants and food chains (e.g., to wrap hamburgers, etc.), food, beverage, drug and cosmetic packaging, storage and shipping, freezing and storing, gift wrapping/packaging, ice cream bags when buying ice  
20 cream, lawnmower bags, mail bags, meat packing/packaging, merchandise wrapping, packing/packaging and shipping, oven bags, packaging and manufacturing, produce bags when shopping at the grocery store, shipping and packaging (e.g., FedEx®, UPS®, etc.), shopping and grocery bags (e.g., in place of plastic T-shirt bags), storage, and the like. In

some embodiments, handles are attached provided in the individual bags of the bag pack so that the handles can be used once one or more bags are removed from the bag pack.

Those skilled in the art will appreciate that embodiments of the present invention embrace a variety of closure styles. Examples include cord handle, die cut, draw string, hang  
5 holes, patch handle, peel seal, purse clip, rat tail cord, re-closable, rigid snap, rope handle, satchel, soft loop handle, strap handle, tassel, tin tie, zip-loc®, zipper, star seal, quick tie, and the like.

### **Utilization of Supportive Structures**

10 As provided above, some embodiments of the present invention embrace the utilization of a support structure in association with a bag pack. Some examples of support structures include a shell (e.g., Figures 2 and 13), a rim or lid (e.g., Figures 7-12), individual rims or lids (e.g., Figures 6 and 14), a surface (e.g., Figure 3), a frame (e.g., Figure 4), a container (e.g., Figures 5-6), etc.

15 In one embodiment, a “pack” is attached to a “disposable shell” made of cardboard, plastic, or some other type of material that can be disposed. The shell fits inside a consumer’s receptacle, or is free standing - not needing a receptacle. The shell comes in various shapes, sizes, and designs.

In some embodiments, a bag pack is attached to a rigid-type of material (e.g., rim or  
20 lid). The rim or lid may “snap on” to the garbage receptacle, “lock on” to the garbage receptacle, “hook on” to the garbage receptacle, be attached to the garbage receptacle with velcro®, be stuck to the garbage receptacle with a “peel seal”, “rest upon” the garbage receptacle, etc.

Where individual lids or rims are employed, each individual bag is joined or coupled to a separate disposable rim during the manufacturing process. These bag/rim combinations are then stacked one on top of another, similar to the way paper cups are stacked upon each other, forming what is now a "pack." The "pack" is then, for example, set upon and/or  
5 attached to a garbage receptacle in the several ways as discussed herein. In one embodiment, each rim snaps closed like a purse to reduce odor while its housed in the receptacle, or to facilitate removal and disposal once the bag has been used.

In at least some embodiments of the present invention, manual attachment is utilized. Examples include a hanging pack, such as illustrated in Figures 3-4. In some embodiments, a  
10 nested bag pack is made to hang upon (or hold to) some type of receptacle, cage, frame, hook, knob, box, canister, etc., by, for example, an adhesive, a band, a bend, a clamp, a clip (e.g., Figure 15), a compression, a crimp, a fastener, a hook, a knot, a lid, a lock, a magnet, a rim, a rubber band, a seal, a stitch/stitching, a snap, a staple, a stretch, a string, a tack, a tension, a tie, a tuck, a wire, a zip, or the like.

### **Selectively Detaching Nested Bags**

As provided herein, bags of a nested bag pack are selectively extracted from the nest according to a desired strength, use, manner, etc. A coupling mechanism used to couple the bags of the nest enables selective decoupling of one or more bags from the nest or pack for  
20 use. Examples of methods for selectively detaching nested bags in accordance with the present invention include a perforated tear lines and/or pull lines method, a string method, a peel off method, an un-zip method, a detach or un-tie method, a free method, etc.

In a perforated tear lines and/or pull lines method, a consumer/user takes hold of the

inner bag or bag-set and pulls or tears it away from the remaining pack. In further embodiments, the mechanism is a plastic weld that is decoupled or ripped for extraction of the bag or bag-set.

5 In at least one string method, the user or consumer grabs hold of a string/tab or thin strip of plastic and/or metal (e.g., tin or another metal), which causes the inner bag or bag-set to separate from the remaining bags of the bag pack similar to the way in which a consumer would pull a string to open a Band-aid® or in which a consumer would pull a thin plastic strip to open an overnight delivery package.

10 In a peel off method, a user or consumer takes hold of the inner bag and peels it out from the canister and away from the remaining bags of the bag pack similar to the way in which a consumer pulls a magnet from a postcard or an envelope of perfume from a magazine, in which the magnet and/or envelope of perfume has been placed upon the postcard and/or magazine with an adhesive that is not intended to permanently seal it to the magazine/postcard.

15 In an un-zip method, a user or consumer takes hold of the inner bag and pulls it out from the canister and away from the remaining "pack" similar to the way in which a consumer pulls apart a Zip-loc® bag. In other words, during the manufacturing process, the bags have been zipped together in order to form a bag pack.

20 In a detach or untie method, a user or consumer locates the point at which the bags have been "tied," "joined," "locked," "strung," "wound," or "attached" together in some way, and unties, unbends, unwinds, and/or detaches the inner bag out from the receptacle and away from the remaining bags of the bag pack.

In a free method, the bags are nested inside one another to form a bag pack, but they

are not directly attached to each other. Thus, for example, once the bag pack is hung, each bag can be freely pulled out and away from the rest of the pack.

### **Producing Nested Bag Packs**

5        Embodiments of the present invention embrace a variety of techniques for manufacturing or otherwise producing a nested bag pack. Examples of such techniques include a vacuum method, a blown air method, a drape horse method, a push rod method, and other manufacturing techniques.

10        In a vacuum method, multiple bags are manufactured, for example, by either a continuous tube method (seamless tube method) or a two-side and/or three-side weld method (seamed tube method). A specified number of bags are mechanically inset (inserted within one another) by creating a vacuum wherein the outer bag is sucked open such that the next bag can be brought in. The next bag is subsequently sucked open so that the next bag may be brought in, and so forth. This process is repeated until the specified number of bags has been  
15        inserted. The bags are joined or welded together along the open end of the bags in order to form a nested bag pack. The weld may be a continuous or non-continuous line around the circumference or at another location, or only at a few strategic points sufficient to hold the bag pack together. Alternatively, the open ends are welded to a more rigid type of material (e.g., a disposable rim, lid or shell) designed to keep the bag pack together. Zip-lock®  
20        features, drawstrings, sinusoid waves, die cuts, perforations, and detachment devices are made to each individual bag prior to inserting the bags within one another, or during or after the bag insertion process. In some embodiments, perforations and detachment devices are made so that the consumer can separate each bag from the rest of the bag pack after use.

(e.g., Figures 16-17).

In a blown air method, multiple bags are manufactured, for example, by either a continuous tube method (seamless tube method) or a two-side and/or three-side weld method (seamed tube method). A specified number of bags are then mechanically inset (inserted  
5 within one another) by blowing air into the outer bag such that the walls of the bag are blown open such that the next bag can be brought in. The next bag is subsequently blown open so that the next bag can be brought in, and so forth. This process is repeated until the specified number of bags has been inserted. The bags are joined, coupled or welded together along the open end of the bags in order to form a nested bag pack. The weld may be a continuous or  
10 non-continuous line around the circumference, or only at a few strategic points sufficient to hold the bag pack together. Alternatively, the open ends are welded to a more rigid type of material (e.g., disposable rim, lid or shell) designed to keep the bag pack together. Zip-lock® features, drawstrings, sinusoid waves, die cuts, perforations, and detachment devices are made to each individual bag prior to inserting the bags within one another, or during or  
15 after the bag insertion process. Perforations and detachment devices are made so that the consumer may separate each bag from the rest of the bag pack after use (e.g., Figures 16-17).

In a drape horse method, multiple bags are manufactured, for example, by either a continuous tube method (seamless tube method) or a two-side and/or three-side weld method (seamed tube method). A specified number of bags are then mechanically inset (inserted  
20 within one another) by slipping (draping) the inner-most bag over a frame (horse) such that the horse is brought within the walls of the bag and the top of the horse is brought all the way to the bottom of the bag and is surrounded by the entire vertical and longitudinal walls of the bag causing the body of the bag to become stiff and rigid sufficient to allow the next bag to

be placed over it. The next bag is subsequently draped over the previous bag, and so forth.

This process is repeated until a specified number of bags has been draped. The bags are

joined, coupled or welded together along the open end of the bags in order to form a nested

bag pack. The weld may be a continuous line around the circumference, or only at a few

5 strategic points sufficient to hold the bag pack together. Alternatively, the open ends are

welded to a more rigid type of material (e.g., disposable rim, lid or shell) designed to keep

the bag pack together. Zip-lock® features, drawstrings, sinusoid waves, die cuts,

perforations, and detachment devices are made to each individual bag prior to inserting the

bags within one another, or during or after the bag insertion process. Perforations and

10 detachment devices are made so that the consumer can separate each bag from the rest of the

bag pack after use (e.g., Figures 16-17).

In a push rod method, multiple bags are manufactured, for example, by either a

continuous tube method (seamless tube method) or a two-side and/or three-side weld method

(seamed tube method). A specified number of bags are then mechanically inset (inserted

15 within one another) by sucking or blowing open the outer bag and stuffing the next bag

inside the first with a push rod. The second bag is then sucked or blown open such that the

next bag can be stuffed in with the push rod, and so forth. This process is repeated until the

specified number of bags has been stuffed. The bags are joined (welded) together along the

open end of the bags in order to form a nested bag pack. The weld may be a continuous line

20 around the circumference, or only at a few strategic points sufficient to hold the bag pack

together. Alternatively, the open ends may be welded to a more rigid type of material (e.g.,

disposable rim, lid or shell) designed to keep the bag pack together. Zip-lock® features,

drawstrings, sinusoid waves, die cuts, perforations, and detachment devices are made to each



individual bag prior to inserting the bags within one another, or during or after the bag insertion process. Perforations and detachment devices are made so that the consumer can separate each bag from the rest of the bag pack after use (e.g., Figures 16-17).

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### **Packaging Nested Bag Packs**

In accordance with embodiments of the present invention, a variety of techniques may be used to package nested bag packs. Examples of such techniques include a flat lay method, a single roll method, a multiple roll method, a pack-stack method, a single-stack method, etc.

10

In a flat lay method, a bag pack is folded to lay flat on the shelf or flat in a box. The bag pack is attached to a collapsible rim or shell, made of cardboard, paper, plastic, or some other type of material. The bag pack is then folded within the walls of the shell (e.g., Figure 18).

15

In a single roll method, a bag pack is provided as a roll. Thus, each bag pack is provided as its own individual roll.

In a multiple roll method, a bag pack is provided on a roll which must be detached along perforation lines from other bag packs which are also attached to the same roll. Thus, multiple bag packs are attached end to end and rolled into one roll. A user may remove one bag pack for use at a time.

20

In a pack-stack method, a bag pack is provided on a shelf stacked upon another bag pack similar to the way in which paper cups are stacked upon each other. Each bag pack may be removed from the stack and sold separately – as one bag pack.

In a single-stack method, bag packs are packaged using the individual disposable-

rims technique discussed herein, wherein each box or package of bags contains a stack of bags that are individually attached to a rim. Accordingly, each bag is placed within a receptacle for individual use, rather than the entire "pack" of bags being placed upon the canister at once (e.g., Figure 14).

5           Accordingly, embodiments of the present invention relate to disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag  
10 strength for the user, and/or facilitate use of the disposable bags.

          In at least some of the embodiments of the present invention allow for a user to put all the packaged liners in the garbage receptacle at once. Moreover, embodiments of the present invention include the following advantages: Elimination of the task of inserting liners one at a time. The new "one time" task is easier to perform than the old "repetitive" task of lining a  
15 receptacle. The garbage receptacle does not have to be relined after the top liner is removed. It reduces the number of times one must bend over to reline a garbage receptacle. The garbage receptacle is ready to go again as the used liner is removed.

          Embodiments of the present invention satisfy an unappreciated need to remove a used bag without having to replace it with a new one. The manufacturing process replaces a task  
20 previously performed by humans. It provides a more convenient place to store unused bags/liners. Further, it is easier to open a prepackaged set up bags than one bag off a roll of bags. If a heavy item is placed in the receptacle, one need only extract more than one liner (bag) at a time to add strength and support to the heavy matter when removing from the

receptacle. If the liner begins to leak, more than one liner can be pulled at a time to prevent the liners from leaking when removed from the receptacle. If a liner leaks while in the receptacle, the lower liners will catch the leak, thus preventing the container from becoming dirty or contaminated.

5           Embodiments of this invention are not limited to trash liners. The systems and methods of the present invention work well in any situation where bags are repetitiously filled. The bags do not have to hang within a receptacle. For example, other structures or hangers can support the bags. Moreover, the bags can be attached to a disposable receptacle, rim, lid, or other rigid device during the manufacturing process.

10           By way of example, a nested bag pack may be attached to and sold with a disposable shell that allows the bag/bag-set to be self-standing. Alternatively, the nested bag pack can be attached to a rim that connects or rests upon a rigid container already owned. Alternatively, each individual bag can be attached to its own disposable rim. The disposable rims may be stacked. Moreover, the rims may include hinges/bends so as to snap closed after  
15 each bag is used. Nested bag packs further eliminate the task of placing a bag inside and around the rim of the already-owned receptacle each time a bag is to be used.

          Whatever is placed into the first bag of a bag pack that has been set with multiple bags, will press all the bags against the walls and bottom of the container. Therefore, when the top liner is removed, the lower liners remain in place and do not require further  
20 adjustment.

          Multiple bagging (the process of manually placing one bag inside of another to prevent the bags from leaking or ripping when you fill them with a heavy or wet load) no longer has to be done manually.

The decision to double or triple bag does not have to be made before the bags are filled. That decision can now be made after the bags are full, when the user has a better idea of how many layers/bags will be necessary.

Thus, as discussed herein, embodiments of the present invention relates to disposable bags. In particular, the present invention relates to systems and methods for providing nested disposable bags for selective use. In at least some implementations of the present invention the nested disposable bags increase user efficiency, enhance health and/or sanitation, provide a savings of time and/or money in using disposable bags, selectively provide needed bag strength for the user, and/or facilitate use of the disposable bags.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes that come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is: